



Gamford Farm, Rossett Ecology Mitigation Strategy

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1.0 INTRODUCTION

1.1 The aim of this document is to outline the mitigation strategy which will take place, in association with the redevelopment of Gamford Farm, Rossett. This strategy will ensure that there is minimal impact upon the protected species present on site and ensure the equivalent future population is maintained.

1.2 To recap:

Phase 1 Survey

1.3 An independent Phase 1 Ecological Survey has been undertaken by TEP (The Environmental Partnership), the aim of which was to establish which species (both flora and fauna) are present at the site including possible protected species. A daytime inspection was undertaken, the findings of which have been presented in an appropriate report (previously submitted).

1.4 In terms of protected species, the site was firstly assessed as having potential to support Great Crested Newts and Bats.

1.5 Two ponds within 250m of the site were assessed on their potential to support Great Crested Newts, however samples returned from the ponds produced **negative results on the presence of this species**. The Environmental DNA Analysis carried out by TEP Ecological Consultants to determine the presence of this species is a recognised, approved method by Natural England and Natural Resources Wales for species monitoring in water bodies. The test can only ever show a snapshot in time and it is not a requirement that tests be carried out regularly over various years.

1.6 However hand searching likely habitats on site pre commencement and newt friendly construction methods would be carried out as is suggested.

1.7 Secondly, a bat roost assessment was carried out which concludes that barns 1, 2, 3, 5, 6 and 9 and the house each have potential for bat roosting. The main house included evidence of bat droppings.

1.8 This assessment states that further survey work is required due to these findings on the potential for bat roosting, in order to confirm which bat species are present, discover species numbers and the status of the roosts.

Bats

1.9 Consequently, a further survey has been undertaken by Arbtech Consulting Ltd., a recognised team of specialist ecological consultants well versed in survey work and the requirements of the associated Acts and Regulations.

1.10 The aims of this survey were:

- To find or record the emergence of bats from a building or built structure.
- To find roosts by tracking back bat flight paths or observing dawn flight activity at roosts.
- To determine presence/likely-absence of species i.e the species present in the given area.
- To determine the intensity of bat activity both spatially and temporally i.e. to help estimate bat populations.

- To determine the type of activity, most usually foraging (e.g by feeding buzzes), commuting (e.g. by high directional pass rates) and by mating (e.g. by mating social calls).
- 1.11 This survey **confirms the presence of a bat roost in the house** (species Common Pipistrelle). In the barns, a sufficient survey has taken place which **confirms the likely absence of bats**. However, this does not preclude the barns from being a suitable habitat for bats in the future. A precautionary approach to demolition is still recommended. Further recommendations and mitigations measures are suggested.
- 1.12 There is the requirement for mitigation measures to be incorporated in the design process. Bats have been identified as being the principle concern in association with the redevelopment of the site, being a European protected species, and therefore the mitigation strategy principally focuses on this species.

Background on Bats and Legislation

- 1.13 All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended), extended by the Countryside and Rights of Way Act 2000. They are also a European Protected Species under The Conservation of Habitats, & Species Regulations 2010.
- 1.14 It is therefore an offence to:
- recklessly, intentionally or deliberately kill, injure or capture (take) bats;
 - deliberately disturb bats (whether in a roost or not);
 - damage, destroy or obstruct access to bat roosts;
 - possess or transport a bat or any part of a bat, unless acquired legally; and
 - sell, barter or exchange bats, or parts of a bat.

Licensing

- 1.15 Natural Resources Wales issues licences under Regulation 53 of the Habitats Regulations to allow developers to work within the law. These licences are issued for specific purposes stated in the Regulations, if the following three tests are met:
- the purpose of the work meets one of those listed in the Habitats Regulations (see below);
 - that there is no satisfactory alternative;
 - that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status (FCS) in their natural range.

Licensing Purposes

- 1.16 The Habitats Regulations permits licences to be issued for a specific set of purposes including:
- preserving public health or public safety or other imperative reasons of over-riding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;

- scientific and educational purposes,
- ringing or marking, and conserving wild animals.

2.0 BATS

- 2.1 The mitigation strategy has been composed in accordance with guidelines and recommendations provided within the document 'Bats and Buildings' (2012) published by the Bat Conservation Trust.
- 2.2 Feeding/foraging and maternity/hibernation roosts will each be provided as part of the proposed development. This ensures a variety of habitats for the bats to replace the existing.
- 2.3 The level of mitigation should be proportional to the ecological impact of the development. This depends on the conservation significance of the roosting sites, which is determined by species, population size and roost status.

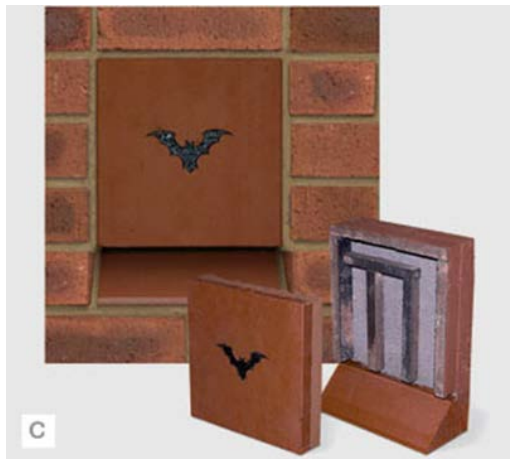
Demolition

- 2.4 As a precautionary measure and to minimise potential disturbance to bats, renovation and demolition of the buildings will be appropriately supervised by a licensed bat ecologist. The ecologist would supervise the removal of the roof tiles, woodwork and exposure of the loft voids.

Maternity Roost

- 2.5 The TEP Ecological Assessment identifies the likelihood of a maternity roost in the roof of the main house due to the large number of droppings. The Common Pipistrelle is the species present.
- 2.6 The ARBTECH Bat survey confirms the presence of a roost in the roof void of the main house.
- 2.7 A maternity roost needs to be replicated in the new development. It will be most suitable to specify the Ibstock bat box brick for a maternity roost. This bat box is specified suitable for the Common Pipistrelle species which is known to be present on the site. This bat box is suitable for a maternity roost because its small space will provide added warmth to the bats. In addition, this space can also function as a hibernation roost, due to its small size and warming effect.
- 2.8 Specifically, one of the replacement dwellings (plot 8) will incorporate a bat roosting box brick within the cavity wall gable end, which will be accessible only by bats.
- 2.9 However as an additional benefit for the conservation of bats, above and beyond what may be expected, barns 5 and 6 will also each include a bat roosting box brick within their gable ends. This is an opportunity for potential ecological gain as recognised by Arbtech Consultants. Barns 5 and 6 are suitable in that they are set further away from the rest of the structures and main access points, in the least 'busy' part of the site. This therefore ensures minimal disturbance to the bats.
- 2.10 Guidance produced by the Bat Conservation Trust outlines the specific features buildings must have to incorporate suitable space and access points for bat roosting:
- 2.11 "Crevice-dwelling bats (including common pipistrelle) can crawl into their roosts via small gaps in the range of 15 - 20mm high by 20 - 50mm wide. The roost area should maintain a crevice of this approximate size gap that the bats can roost between. The area this roost provision covers can be small but about 1m² would be useful for summer nursery roosts. The height of entry can be from 2 - 7m".

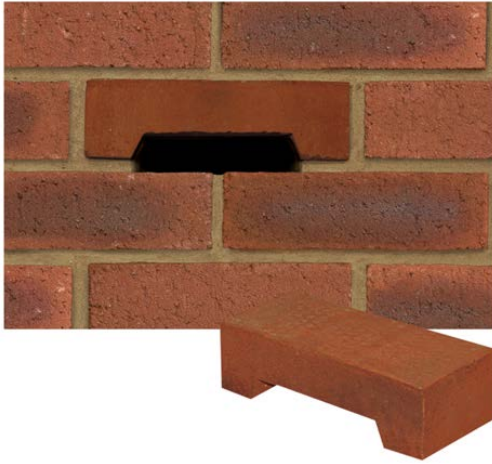
- 2.12 Ibstock brick manufacturers specify certain free access bat boxes and enclosed bat boxes. The enclosed bat box is stated to be designed specifically for the pipistrelle bat - the species which is known to have been roosting in the main house. The Ibstock Bat Box Type C – 215mm x 290mm will be specified (see below).



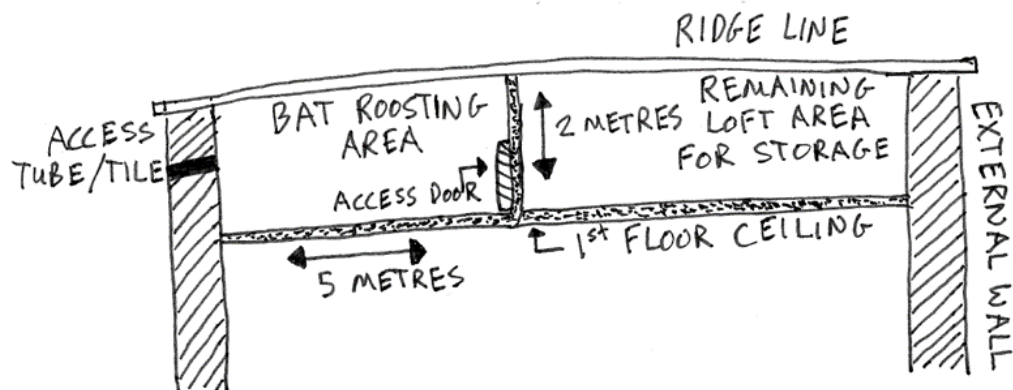
Feeding Roost and Bat Loft

- 2.13 Bats were also observed feeding and foraging around the main house and it is likely that the roost in the roof serves such a purpose. It is therefore necessary to include an open space within the loft of one of the replacement dwellings, to provide an appropriate feeding and foraging roost, similar to the space which was present before. This larger space means bats can fly in and out easier. The space will attract and contain insects and spiders etc. which provides a food source for the bats.
- 2.14 The Bat Conservation Trust states that: *“Bats needing a flying area require an access dimension of 15-20mm (h) x 20-50mm (w) situated over 2m in height. The roosting area should not be trussed, to allow flight, and should ideally be about 2.8m in height and 5m in length and width”.*
- 2.15 Plot 7 will include a feeding / foraging roost in the roof space, of approximately the size requirements outlined above.
- 2.16 This space will not contain trusses, in order to allow flight but it will contain exposed roof beams with rough surfaces for bats to roost on.
- 2.17 The floor will feature a waterproof membrane and durable MDF boards to limit the effect of droppings.
- 2.18 The space will be accessible only by bats. However there would be a small access door from the main loft for rare occasions when cleaning and inspection may be required. This would only be carried out by a licensed bat ecologist.

- 2.19 The bat loft will be accessed from the exterior gable end by the Ibstock Free Access Bat Box Type A 215 x 65mm (see image below).



- 2.20 The drawing below illustrates the basic design of the loft:



3.0 LIGHTING STRATEGY

- 3.1 There will be no artificial lighting shining directly on bat roosts, their access points and flight paths.
- 3.2 Light levels of 1 lux or higher can influence the behaviour of bats and reduce the likelihood of emergence from roosts at the appropriate times. Therefore, a luminescence of 1 lux or less will be ensured on areas that do not need to be lit and specifically, the areas of wall containing the roosts, from which bats would emerge.
- 3.3 Exterior floodlighting will feature PIR sensors activated by movement. These will switch off automatically after a short period of time (user adjustable of between 2 and 12 minutes).
- 3.4 These will be mounted on barn 1 pointing west, barn 1 pointing south and barn 2 pointing north, focussed downwards at a 45 degree angle. These positions are the best possible to ensure effective floodlighting for the parking areas, whilst not shining directly on bat roosts, access points or flight paths.
- 3.5 The product that would be specified is the Lumineux 400816-BL LED PIR Floodlight 20W 4000K Black (see image below). This has a brightness of 1600 lumens, in accordance with the document 'Bats and Lighting in the UK' published by the Bat Conservation Trust, which states that floodlights of more than 2000 lumens are rarely necessary, or suitable in locations where bats are concerned.



- 3.6 Lights on buildings will be at ground floor level entrances only. These will be in the form of minimal wall amenity down lighting (similar in style to either of the lights seen below) of the minimum brightness necessary.



- 3.7 There are no door entrances on the gable ends of barns 5 and 6 and therefore external lighting is not required in these locations. Consequently, bat boxes on these gable ends would remain in darkness.
- 3.8 There is a side entrance proposed on the gable end of plot 7, which would require lighting. However this lighting will be focussed downwards, away from the sensitive area. A factor to consider is that the height of these properties is greater, meaning the bat boxes can be set much higher up in the gable ends, further away from sources of light.
- 3.9 Therefore a figure of 1 lux or less on the areas of brick work from which bats would emerge would be achievable.
- 3.10 It is likely that entrance lights would only be switched on at certain times, ensuring that for the majority of the time at night, there will be relative darkness. Residents can be made aware of the presence of bats on the site and it could be requested that the use of external lighting is kept to a minimum, in order to minimise disturbance.
- 3.11 It is considered that the lighting strategy can successfully achieve the balance of adequately dark conditions for bats, whilst providing satisfactory amenity and security lighting for residents.
- 3.12 A specific lighting plan showing the location of external lighting and associated specifications would ultimately be submitted for the discharge of an appropriately worded planning condition.

4.0 OTHER CONSIDERATIONS

Timing of Building Works

- 4.1 Bat Conservation Trust guidance on the timing of construction works states:
- 4.2 *“Summer months, when bats are in maternity roosts, and the winter months, when bats are hibernating, should be avoided”.*
- 4.3 Therefore demolition work which could cause the most disruption would be carried out during the autumn / spring months.

Birds

- 4.4 Several buildings have been confirmed as containing bird roosts for a variety of birds. Therefore, appropriate bird boxes would be provided in locations to be confirmed across the site (suitable for sparrows and swallows).
- 4.5 All nesting birds are protected under the WCA during the nesting season and it is an offence to take, damage or destroy the nest of any wild bird whilst it is in use or being built. The buildings will therefore need to be demolished outside the nesting bird season, which is usually accepted as running from early March to the end of August. Demolition would take place during the Autumn or Spring months and would coincide with the time when demolition is preferred to ensure minimal impact upon bats.

Hedgerows

- 4.6 It is acknowledged that the removal of native hedgerows bordering Gamford Lane for visibility purposes would result in the loss of an existing habitat.
- 4.7 Therefore this removal will be mitigated through the planting of hedgerows elsewhere on site.
- 4.8 This can be agreed upon by an appropriate planning condition and would be implemented through a further landscaping scheme.

5.0 CONCLUSIONS

- 5.1 Following the mitigation measures outlined in this document would ensure that the proposed development does not have an adverse impact upon existing species and populations present on the site. This is with particular regard to bats and their habitat.
- 5.2 The detailed recommendations and guidance set out within Chapter 6 of the TEP Phase 1 Ecological Assessment will also be followed to enhance the ecology mitigation of the wider site.

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